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FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554

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In the Matter of Amendment of )  
Section 2.106 of the Commission's )  
Rules to Allocate Spectrum at 2 )  
GHz for Use by the Mobile- )  
Satellite Service )

ET Docket No. 95-18

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JOINT COMMENTS OF THE ASSOCIATION  
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OTHER MAJOR TELEVISION BROADCASTING ENTITIES

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## INTRODUCTION AND SUMMARY

In this proceeding, the Commission seeks comment on a number of ways of accommodating mobile satellite services ("MSS") in the spectrum presently allocated for broadcast auxiliary services ("BAS"), including reducing BAS spectrum and relocating some BAS operations to higher frequencies in the 2 GHz band. Although there is as yet no unified MSS industry explication of precisely how its needs can be best met, the Joint Commenters recognize that the MSS industry may have a legitimate need for additional spectrum. In an effort to cooperate with that industry, Part I of these comments sets forth our conditional acceptance of the Commission's proposal to relocate BAS operations from the 1990-2025 MHz band to the 2110-2145 MHz band, if and when such relocation proves necessary. See Notice, at ¶¶ 7-8. Part II sets forth the reasons why free, over-the-air television service, if it is to remain universal and excellent, cannot sustain a net reduction in BAS spectrum in the 2 GHz band.

What is at stake here and in the two companion proceedings dealing with BAS<sup>2/</sup> is no less than the public's continuing access to extensive and timely news and special event coverage through free, universal, and locally-based

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<sup>2/</sup> See In the Matter of Preparation for International Telecommunication Union World Radiocommunication Conferences, (Second NPRM), IC Docket No. 94-31 (released January 31, 1995); In the Matter of Allocation of Spectrum Below 5 GHz Transferred from Federal Government Use, (Report & Order/Second NPRM), ET Docket No. 94-32 (released February 17, 1995).

television service. This coverage, whose importance was never clearer than during the recent Oklahoma City bombing tragedy, depends on electronic news gathering and other auxiliary services operating in the 1990-2110 MHz band.

As the number of service providers wishing to add news and other locally-responsive programming has grown, this band has become ever more clogged. This well-documented congestion has challenged broadcasters to develop state-of-the-art equipment and complex time-sharing and other arrangements to make the most of the available spectrum and provide access to growing numbers of cable, network, and local newscasters. The results of a study just conducted by the NAB highlights just how seriously congested the 2 GHz BAS spectrum is in the eyes of the frequency coordinators who must manage escalating use (attached as Exhibit A). Although equipment advances may improve spectrum use, these gains in efficiency will almost certainly lag behind the accelerating demand for analog BAS and be overwhelmed by the impending demands of digital ATV broadcasting. To support their progress to ATV and to honor the Commission's spectrum management goals of exploiting the higher frequencies, broadcasters are pursuing BAS allocations in the 4660-4685 MHz band recently opened up for private use by the National Technology and Information Administration.<sup>3/</sup>

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<sup>3/</sup> See Comments of MSTV to the Notice of Inquiry, ET Docket No. 94-32 (June 15, 1994); Comments of MSTV and Other Major Television Broadcasting Entities to the NPRM, ET Docket No. 94-32 (December 19, 1994); Comments of MSTV and Other Major Television Broadcasting Entities to the Second Notice, ET (continued...)

Although an allocation in the 4 GHz band could accommodate some of the future digital demand (as well as overflow of analog demand in the 2 GHz band particularly in larger markets), it cannot replace the heavily used 2 GHz spectrum. At this time, and for the foreseeable future, there is simply no substitute for the 2 GHz BAS spectrum because of its unique propagation characteristics. The indispensability of this BAS allocation requires that there be no net loss of spectrum allocated to BAS. The Commission's proposal that MSS operators underwrite the costs of clearing the 2110-2145 MHz band and relocating BAS operations from the 1990-2025 MHz band to the newly-cleared 2110-2145 MHz band is acceptable provided that the associated transition plan reflects basic and already established principles of equity and fairness. However, any alternative that would reduce the already scant 2 GHz spectrum available for BAS would unacceptably deprive the public of the broadcast coverage it now expects.

**I. BROADCAST AUXILIARY OPERATIONS MUST HAVE ADEQUATE SPECTRUM THROUGHOUT AND AFTER ANY TRANSITION PERIOD.**

**A. Effective Broadcast Television Depends Upon BAS.**

The 1990-2110 MHz band is currently allocated for auxiliary broadcast operations, and is divided into seven BAS channels available for licensing to all television licensees

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<sup>3/</sup>(...continued)

Docket No. 94-32 (March 21, 1995); Petition for Reconsideration of MSTV and Other Major Television Broadcasting Entities, ET Docket No. 94-32 (April 6, 1995); Reply comments of MSTV, ET Docket No. 94-32 (April 4, 1995).

and used on a shared basis.<sup>4/</sup> Local broadcasters use the 1990-2110 MHz band for electronic news gathering ("ENG"), intercity relays ("ICRs"), and studio-to-transmitter tower links ("STLs").<sup>5/</sup> Broadcast and cable networks also rely on the 1990-2110 MHz band to cover special events and to support news gathering for their national news programming. Local station affiliates produce coverage of stories using the 2 GHz band and then provide feeds to the broadcast networks.<sup>6/</sup> These feeds are in turn used to facilitate the networks' national coverage of events from across the country.<sup>7/</sup>

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<sup>4/</sup> The 1990-2110 MHz band is also shared on a primary basis with broadcast network mobile operations, cable system mobile operations, and cable network mobile operations. See 47 C.F.R. §§ 2.106, 74.602(a), 74.631(j), 78.11(f), 78.18(a)(7).

<sup>5/</sup> The Commission has also allocated two additional bands for broadcast auxiliary operations on a primary basis the 6875-7125 MHz and 12.70-13.25 MHz bands. However, neither of these bands is suitable for the operations associated with ENG operations. Moreover, certain members of the MSS community wish to gain access to this BAS spectrum as well, ostensibly to accommodate space-to-earth MSS links. See, e.g., Comments of COMSAT Mobile Communications, Inc., IC Docket No. 94-31 (July 15, 1994), at 13-14 (6875-7075 MHz and 12.75-13.25 GHz bands); Comments of Constellation Communications, Inc., IC Docket No. 94-31 (July 15, 1994), at 6 (6825-7025 MHz band); Comments of Loral/Qualcomm, Inc., IC Docket No. 94-31 (July 15, 1994), at 16-18 (6825-7075 MHz and 12.75-13.25 GHz bands).

<sup>6/</sup> Reply Comments of Capital Cities/ABC, Engineering Statement of Kenneth J. Brown, ET Docket No. 94-32, at 1-2 (June 29, 1994); Comments of Capital Cities/ABC, Engineering Statement of Kenneth J. Brown, ET Docket No. 92-9, at 2-4 (June 4, 1992).

<sup>7/</sup> BAS supports the creation as well as the coverage of news. For example, BAS transmissions are key to the notion of "electronic town hall meetings," that President Clinton has supported. See e.g. Kramish, "Clinton, at Meeting, Talks of Taxes," The Boston Globe, February 3, 1993, § 1, p. 1; Lee, "Town Hall Meetings Let Public Go Over Heads of Media," The Vancouver Sun, October 9, 1993, § A, p. 7.

Use of BAS in supporting both local and network coverage of the recent Oklahoma City federal building bombing shows just how vital BAS can be to moments of critical importance in the nation's life. Oklahoma City residents relied on non-stop local coverage -- all dependent on BAS operations -- for information about casualties, rescue efforts, suspects, and the government's response. Millions more Americans tuned in to their own local and the network news coverage of the event.<sup>8/</sup>

These broadcast auxiliary operations are essential to the provision of free, locally based, universal television programming that provides virtually all Americans with their primary source of news, sports, and information. Though their transmissions are invisible to the public, BAS operations conducted in the 2 GHz band make it possible for even the smallest stations to cover breaking news and other events live by transmitting signals in real time back to their studios via BAS spectrum.

B. Any BAS Relocation Must Ensure the Integrity of BAS.

Recognizing that broadcasters rely heavily on the 1990-2110 MHz band, including the 1990-2025 MHz band, and that they could not function properly with less spectrum, the Commission has proposed moving BAS operations from the 1990-2025 MHz band to the 2110-2145 MHz band, thereby ensuring no net loss of spectrum. Notice, at ¶ 10. As a preliminary

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<sup>8/</sup> See Petrozzello, "Radio, TV Mobilize in Oklahoma City," Broadcasting & Cable, April 24, 1995, at p. 10.



matter, we emphasize that decisions about a transition plan for BAS spectrum can (and properly should) await the ITU's reaction to the Commission's proposal to allocate the 1990-2025 MHz band to MSS. If the ITU does not endorse the United States' proposal to allocate this band to MSS, a detailed domestic transition plan will be unnecessary.<sup>9/</sup> So too, if it turns out that an MSS allocation structured altogether differently would better suit the needs of MSS -- a point as to which the MSS community members apparently have differing views -- a transition plan along the lines presently contemplated will be unnecessary.

To the extent that it is now appropriate to select guidelines for a future relocation of some BAS operations, the Commission should be guided by its well-received plan to relocate microwave incumbents from the 1850-1990 MHz band to make way for PCS.<sup>10/</sup> Most importantly, the principles

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<sup>9/</sup> Indeed, it now appears that a significant number of ITU member states will not support abandoning the WARC-92 MSS allocation in the 1970-1990 MHz band in favor of a new allocation in the 2010-2025 MHz band. See Reply Comments of TRW, Inc., IC Docket No. 94-31, at 14-15 (April 14, 1995) (reporting that at the recent Conference Preparatory Meeting, a "substantial number of countries from the Arab sub-continent and Africa consistently rejected any attempt to alter the compromise agreed to at WARC-92."); Comments of COMSAT Mobile Communications, IC Docket No. 94-31, at 15 ("the world is simply not ready to make new MSS allocations [in the 2 GHz band]").

<sup>10/</sup> See In the Matter of Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies, (Report & Order), 9 FCC Rcd 1943, 1943-44, 1948 (1994); In the Matter of Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies, (Third Report & Order), 8 FCC Rcd 6589, 6602-04  
(continued...)

adopted for the reallocation of BAS operations must preserve the quality and scope of essential broadcast auxiliary services. To accomplish this goal, MSS providers should be required to bear all costs associated with relocation, the new BAS facilities should be fully comparable to existing BAS facilities, all steps necessary for the effective relocation should take place before broadcasters are evicted from the 1990-2025 MHz band (including removal and relocation of the incumbent users of the 2110-2145 MHz band), and broadcasters should have a right of return if the new facilities do not prove suitable.

In support of the Commission's proposal to require the MSS newcomers to pay all costs associated with relocating the BAS incumbents in accordance with the PCS/microwave precedent, the Commission should consider the other costs broadcasters will face in the coming years. The transition to advanced digital television will require television stations, large and small, to make large capital outlays over the next several years to upgrade both main and, eventually, auxiliary equipment to digital.<sup>11/</sup> There is no doubt that broadcasters

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<sup>10/</sup> (...continued)

(1993). This right is critical even though it might disrupt the worldwide allocation.

<sup>11/</sup> See Jessell, "Hundt Prepares 2nd Channel Freedom," Broadcasting & Cable, April 17, 1995, at p. 8 (discussing costs and benefits of digital television); Farhi, "HDTV, High Definition, Low Priority," The Washington Post, March 23, 1995, § D, p. 10 (estimating cost of transition at \$8 million to \$10 million per station); McConnell, "More, Not Less, Time Needed for HDTV Switch," Broadcasting & Cable, January 16, (continued...)

are prepared to see through this transition with a substantial, long-term financial commitment to digital broadcasting.<sup>12/</sup> However, if broadcasters are undercompensated for relocating to the 2110-2145 MHz band, smaller stations in particular could be overwhelmed by the costs of transition and might be forced to delay the implementation of local news programming in digital, to the public's detriment.<sup>13/</sup>

In addition, the Commission should provide a reasonable period of time in which to allow MSS providers, broadcasters, and displaced microwave incumbents to make mutually satisfactory arrangements to facilitate the

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<sup>11/</sup> (...continued)

1995, at p. 103 (noting that implementation of HDTV will place a disproportionate burden on television broadcasters operating in smaller markets).

<sup>12/</sup> See Jessell, "Broadcasters Come Together Over HDTV," Broadcasting & Cable, April 17, 1995, at p. 6.

<sup>13/</sup> The Commission has been sympathetic to cost-based arguments in the context of land mobile refarming. See "SMR Study Indicates 18 Percent User Growth for Operations in 1994," Land Mobile Radio News, December 9, 1994, at p. 1 (reporting that the FCC is considering a "26-year, four-phase transition period" to accommodate the land mobile radio community's concerns about the expense of retrofitting their facilities). Land mobile operators have successfully delayed the implementation of a final refarming plan for some two years, and any refarming plan is likely to provide them with a substantial transition period during which to upgrade their equipment. See Comments of the Land Mobile Communications Council, PR Docket No. 92-235, at 4-5, 7-9 (April 28, 1993) (proposing an implementation plan for refarming that would not fully implemented until the year 2012). Broadcasters are entitled to no less favorable treatment, and arguably deserve considerably better treatment because digital video compression standards for contribution quality professional uses are still under development.

relocation of fixed microwave and broadcast auxiliary services.<sup>14/</sup> Assuming the ITU does not accelerate the global allocation of the 1990-2110 MHz band, the transition period should last at least through January 1, 2005. Certainly broadcasters should not be forced to relocate before the ITU allocation takes effect.

**II. ANY REDUCTION IN THE AMOUNT OF 2 GHZ SPECTRUM ALLOCATED FOR BAS WOULD DAMAGE TELEVISION BROADCASTING.**

**A. BAS Demands in the 2 GHz Band Exceed Capacity.**

Broadcasters currently overload the 1990-2110 MHz band and BAS use is predicted to increase annually. As MSTV and the other Joint Commenters have explained in prior pleadings,<sup>15/</sup> this congestion in the 2 GHz BAS spectrum is impairing the scope and quality of news programming. The birth of three new networks (Fox, UPN, and Warner Brothers) will continue to amplify past demands, just as the emergence of cable systems with local "news channels" and independent

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<sup>14/</sup> See In the Matter of Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies, (Third Report & Order), 8 FCC Rcd 6589, 6602-04 (1993).

<sup>15/</sup> See Comments of MSTV and Other Major Television Broadcasting Entities, IC Docket No. 94-31, at 5-12 (March 6, 1995); Comments of MSTV and Other Major Television Broadcasting Entities, ET Docket No. 94-32, at 2-5 (December 19, 1994); Comments of MSTV, ET Docket No. 94-32, at 2-6 (June 15, 1994); see also Comments of MSTV, IC Docket No. 94-31, at 3-7 (July 19, 1994); Reply Comments of MSTV, ET Docket No. 94-31, at 1-3 (August 5, 1994); Reply Comments of MSTV, ET Docket 93-198, at 3-4 (July 29, 1993); Reply Comments of MSTV, Gen. Docket No. 89-554, at 3-4 (Jan. 8, 1991); Comments of Capital Cities/ABC, Engineering Statement of Kenneth Brown, Gen. Docket No. 92-9 (June 4, 1992).

news gathering operations have already done.<sup>16/</sup> Local broadcast stations are also augmenting their news capabilities. In the past four years, for example, the number of Fox affiliates airing prime time local newscasts has increased, more than 200%, from 15 to 50.

A number of studies, conducted by both governmental and industry entities over the last six years, document the overcrowding that exists in the 1990-2110 MHz band. Never before has the severity of the overcrowding problem emerged so plainly as it does from two studies concluded just this week. The first study, conducted by Hammett & Edison, Inc. for the NAB and attached hereto as Exhibit A, surveyed 2 GHz volunteer frequency coordinators in the 25 largest television markets.<sup>17/</sup> To a person, the coordinators characterized the 2 GHz band as "congested," particularly during the most intensive news gathering times in the early morning, noon,

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<sup>16/</sup> See Eggerton, "More News at 10 in D.C.," Broadcasting & Cable, April 17, 1995, at p. 28 (describing a new locally-produced newscast that will appear on News Channel 8, Washington, D.C.'s local cable news channel); Brown, "Florida Stations Form News Co-op," Broadcasting & Cable, April 17, 1995, at p. 32 ("Tribune Company is eyeing the possible launch of local cable news channels in Miami and Orlando . . . . Tribune already operates regional news channel ChicagoLand Television News and will be providing local news to Time Warner's full service network"); "All the News," Mediaweek, February 6, 1995, at p. 1 (reporting that Comcast Cable Communications and the Sarasota Herald-Tribune are launching a new all-news cable channel); Lorando, "Venture Weds Newspaper, TV," The Times-Picayune, January 8, 1995, § F, p. 1 (describing ChicagoLand Television and a similar cable channel operating in Orange County, California).

<sup>17/</sup> Hammett & Edison, Inc., 2 GHz Usage Survey (May 1995) (the "Hammett & Edison Study").

late afternoon, and late evening hours. Id. at 1. Nearly three-quarters of the coordinators reported that the difficulty of coordination has worsened in the past five years due to increased use. Id. at 2. In response to these difficulties, 70% of the coordinators have tried to transmit more than one feed on a single channel and almost 40% borrow bands from other 2 GHz services for special event ENG use. Id. Not surprisingly, the respondents were pessimistic about the ability of the 2 GHz band to absorb increased use, much the full freight of advanced television BAS transmissions. "I can't see how too much more will be able to fit into the existing spectrum," one coordinator said. Another warned that a reduction in spectrum "will cause such chaos that the broadcast industry may not recover." Id. at 4.

NAB also just completed a study of BAS facilities in the 2 GHz band, attached as Exhibit B,<sup>18/</sup> which follows-up on a similar study conducted in 1991. The 1995 NAB Facilities Survey, boasting a 78% response rate from the nation's television stations, graphically shows two things: stations have a substantial investment in BAS equipment and that investment has risen since 1991 due to the increased use of the BAS spectrum. For example, the number of 2 GHz BAS receivers has increased by 8.3% in the past four years and the number of transmitters has increased by 12% even though the number of television stations has remained constant. Id. at 3

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<sup>18/</sup> M. Fratrick & K. Williams, 1995 NAB 2 GHz TV Auxiliary Facilities Survey (May 1995) (the "NAB Facilities Survey").

and 4. The only explanation for the growth in equipment is the growing reliance on BAS.

These results confirm the findings of prior studies of BAS spectrum loading. Several years ago, the Institute for Telecommunications Sciences at NTIA conducted a study that: (1) found that the 1990-2110 MHz band is "already crowded in many major markets"; (2) documented a 14.6% annual rate of growth in broadcasters' use of the band from 1989-93; and (3) projected a 15% annual growth rate in use for the next five years.<sup>19/</sup>

Another government study, conducted by OET in 1992, determined that spectrum crowding, particularly in major markets, precluded spectrum sharing in the 1990-2110 MHz band with PCS services.<sup>20/</sup> Based on the OET Study, the Commission concluded that "it [was] not practicable . . . to relocate the broadcast auxiliary" service. NPRM, 7 FCC Rcd at 1544.

Perhaps the most influential study, conducted six years ago and since borne out by time, found that broadcasters

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<sup>19/</sup> See R. Matheson & K. Steele, A Preliminary Look at Spectrum Requirements for the Fixed Services 40-41 (May 1993) (the "ITS Study"). Indeed, even the proponents of MSS systems do not dispute that the broadcast auxiliary spectrum is overtaxed. See, e.g., Comments of AMSC, IC Docket No. 94-31, at 12-13 & 13 n.28 (July 15, 1994); Comments of Motorola Satellite Communications, Inc. and Iridium, Inc., IC Docket No. 94-31, at 10 n.3 (July 15, 1994); Reply Comments of AMSC, IC Docket No. 94-31, at 8 (August 5, 1994).

<sup>20/</sup> See "Creating New Technology Bands for Emerging Telecommunications Technology," FCC/OET TS92-1 (January 1992) (the "OET Study"); Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies, (NPRM), 7 FCC Rcd 1542, 1544 (1992) (the "NPRM").

would need significantly more ENG capacity in the immediate future.<sup>21/</sup> Over 80% of the participants in the study reported congestion problems in their area. Id. at 6.

The lack of sufficient auxiliary spectrum becomes particularly acute on a recurring basis in larger markets whenever major news or special events occur and the auxiliary spectrum needs of broadcasters overtax the available channel capacity. See, e.g., McConnell, "FCC Referees World Cup Broadcast Concerns," Broadcasting & Cable, June 6, 1994, at p. 54. Even in those instances where the Commission has provided temporary relief from overcrowding on an ad hoc basis, many broadcasters still have not enjoyed access to adequate spectrum. Id.; see also ITS Study, at 41-42; Cohen Study, at 6-7. It has already become apparent that there will be insufficient BAS spectrum for complete coverage of the 1996 summer Olympics in Atlanta, as often happens when networks compete with local broadcasters in the press of a special event.<sup>22/</sup> Advance planning suggests that full coverage of the sporting events may well require sacrifices in network and even local station news coverage over the same period. Captive to the seven 2 GHz channels, local, network, and

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<sup>21/</sup> E. Cohen, Television Auxiliary Frequencies Usage Surveys 4 (June 23, 1989) (the "Cohen Study").

<sup>22/</sup> Even under ordinary circumstances, networks are often unable to access sufficient spectrum to support their news gathering activities; see Reply Comments of Capital Cities/ABC, Engineering Statement of Kenneth J. Brown, ET Docket No. 94-32, at 1-2 (June 29, 1994). This directly affects the ability of the networks to provide comprehensive (i.e., truly national) evening news programming.



foreign reporters simply will be unable to provide the public with full information despite the Commission's efforts to supplement access with ad hoc allocations in the higher frequencies.<sup>23/</sup>

BAS used to support advanced television, whether or not operated in the 2 GHz band, will create additional spectrum sharing and coordination strains on broadcasters. These strains should not be overlooked in assessing the capacity of BAS users to operate under even more taxing conditions in the 2 GHz band.<sup>24/</sup> Spectrum management in the public interest should seek to reduce existing, and minimize prospective, stresses on BAS spectrum by at least preserving the amount of spectrum allocated to BAS in the crucial 2 GHz band.

B. Today's BAS Cannot Function Without the 2 GHz Band.

Given the overwhelming demands on the 2 GHz BAS spectrum, it would be convenient if BAS operations could simply shift to a more plentiful allocation in the higher frequencies, as contemplated in the Notice, at ¶ 13.

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<sup>23/</sup> See Letter of Louis Libin to the FCC (April 28, 1995) (third such letter requesting that NBC be given special temporary authority to operate broadcast auxiliary operations on microwave spectrum during the Olympics in addition to the nonstandard spectrum already authorized for coverage of that special event).

<sup>24/</sup> See ITS Study, at 41 ("The prospect of needing additional auxiliary broadcast signals to support HDTV is a potentially serious problem, particularly if HDTV signals are transmitted before they are digitally compressed."); see also NPRM, 7 FCC Rcd at 1544; Reply Comments of MSTV, ET Docket No. 93-198, at 4 & 4 n.5 (July 29, 1993).

Unfortunately, no other available band has the space to accommodate BAS as fully or as well as does the 2 GHz band. The 2 GHz band transmits BAS (especially ENG) particularly effectively because of the favorable propagation characteristics at 2 GHz. Higher bands tend to attenuate the signals, making them more difficult to bounce off buildings, transmit through foliage, or otherwise used in marginal or non-engineered paths.<sup>25/</sup>

Broadcasters are optimistic that digital BAS may one day be conducted in the higher bands, pending advances in digital compression and signal modulation and their implementation in practical equipment design and high volume production.<sup>26/</sup> But at this time, there is no basis for predicting that digital will permit the use of narrower bands than are necessary for analog BAS. There is a common misconception in discussions of spectrum efficiency that advanced television auxiliary services will, through use of digital signals, require less spectrum than current analog systems. Even though digital compression allows more information to be packed into a digital signal, the services digital BAS will support (such as HDTV) require a data

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<sup>25/</sup> These advantages help to explain why PCS and MSS operators seek spectrum in or around the 2 GHz band.

<sup>26/</sup> See generally Comments of MSTV and Other Major Television Broadcasting Entities, ET Docket No. 94-32, at 5-9 (December 19, 1994) (urging that the Commission allocate the 4660-4685 MHz band to forthcoming advanced digital broadcast auxiliary operations) and Petition for Reconsideration of MSTV and Other Major Television Broadcasting Entities, ET Docket No. 94-32, at 3-5 (April 6, 1995) (same).

capacity so high as to more than offset the compression-gained efficiencies.

Some analog BAS operations could also be conducted in the higher bands with hardly any lag-time in the development of the appropriate equipment. However, the existing state of the art could in no way support a move of the mass of BAS operations, particularly ENG operations, out of the 2 GHz band. Moreover, there is nowhere enough available spectrum in the 4 GHz band now or in the future to accommodate the existing BAS uses in the 2 GHz band, let alone the new advanced television BAS uses.

C. The Need for 2 GHz BAS Spectrum Will Outpace Efficiency Gains.

The Notice, at ¶ 13, queries whether BAS might be squeezed into a reduced portion of the existing 2 GHz allocation to accommodate MSS. Although BAS users have continuously improved the efficiency of their operations, these efficiency gains have not kept pace with the exploding demands on the spectrum. Future improvements are unlikely to relieve the crowding significantly. Therefore, reduced spectrum allocations for BAS in the 2 GHz band will necessarily result in reduced live and remote television coverage.

The over-crowding described in section II(A) has given broadcasters every incentive to squeeze as much use as possible into the existing allocation. See Hammond & Edison Study at 2. In doing so, they are constrained by the fact

that pictures broadcast to the studio from the field over BAS spectrum must generally be of significantly better quality than the picture viewers receive on their screens to allow for processing and the normal degradations inherent in broadcast operations and retransmissions. Achieving this quality usually requires a bandwidth of at least 17 MHz for analog transmissions.<sup>27/</sup> There is not now, nor is there on the horizon, any more "spectrum efficient" equipment, digital or analog, available to broadcasters.

Broadcasters will continue to work, as they have in the past, to make their operations as efficient as possible, but cannot foresee that these advances will obviate the need for existing allocations in the 2 GHz band. Given the existing and forthcoming demands on the 1990-2110 MHz band, reducing the amount of spectrum available in this band for BAS without accommodating these services in another 2 GHz frequency band would disserve the public interest.

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<sup>27/</sup> Broadcasters have experimented with splitting channels. See Hammett & Edison Study at 2. However, reduced bandwidth "split channel" operations are possible only under certain conditions and severe technical constraints and result in reduced quality and signal-to-noise performance. For example, President Clinton's visit to the Oklahoma City bombing site created serious overcrowding of the BAS spectrum, requiring close real-time coordination and channel splitting and resulting in signal reception problems.

### CONCLUSION

The Commission should recognize the public's interest in maintaining a free, universal, locally-based television broadcasting service, by ensuring there is adequate spectrum to support broadcast auxiliary services even as the Commission attempts to accommodate new telecommunications services, such as wireless telephony and MSS.

Accordingly, if a partial relocation of BAS ultimately proves necessary, the Commission should craft a spectrum reallocation plan that fully accommodates BAS operations and fully compensates broadcasters for their move. All plans should be rejected that would reduce the net amount of 2 GHz spectrum available for BAS, and would thereby seriously undermine the scope and quality of locally-based and network news programming, possibly impeding the transition to advanced digital television.

Given the importance of broadcast auxiliary services and the cost and difficulty of relocating these operations to another frequency band, the Commission should not reallocate any spectrum in the 1990-2110 MHz band to MSS until the ITU has endorsed a global allocation plan. Should the ITU ultimately endorse an MSS allocation in the 1990-2025 MHz band at WRC-95 or WRC-97, displaced BAS operations should be successfully relocated to alternate spectrum in the 2 GHz band before vacating the 1990-2025 MHz band.

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May 5, 1995





**National Association of Broadcasters**  
**Telephone Survey**  
**of Major Market Frequency Coordinators**  
**on 2 GHz TV Broadcast Auxiliary Use**

May 4, 1995

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